# CMP416: Digital Forensics 2 Network Forensics Investigation

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## Abstract

This report contains the investigation into a corruption case involving an international Chess Boxing competition. Several .pcap files, containing network data, were recovered and analysed revealing a suspect under the names "Kim Ill-Song" who attempted to bribe officials into hosting the event in Pyongyang, North Korea.

Several files and images were also recovered, some holding hidden data related to the corruption case, showing that the criminals attempted to hide their tracks. Another suspect is also uncovered, under the name "Ann Dercover", who arranges a covert meeting with the first suspect, and suggests that he is impersonating the real "Kim Ill-Song".

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## 1 Capture 1

The first Capture contained files that suspect had download related to this corruption case, these files could contain vital information for this investigation. Wireshark includes a feature named "Export Object" that can shows any files the suspect download under specific protocols. Server Message Block (SMB) is a communication protocol that was used by the suspect to download a file named "Documents.zip", as seen in figure 1.

Wires	hark · Export · SMB object	list		- 🗆	>
ext Filter	r: [			Content Type: All Content-Type	S
Packet	Hostname	Content Type	Size	Filename	Т
23854	\\DOG-WS\IPC\$	PIPE (Not Implemented) (0/0) W [ 0.00%]	0 bytes	\srvsvc	
23902	\\DOG-WS\DOCUMENTS	FILE (129/129) R [100.00%]	129 bytes	\desktop.ini	
23924	\\DOG-WS\DOCUMENTS	FILE (151/151) R [100.00%]	151 bytes	\My Music\desktop.ini	
23932	\\DOG-WS\DOCUMENTS	FILE (150/150) R [100.00%]	150 bytes	\My Pictures\desktop.ini	
23940	\\DOG-WS\DOCUMENTS	FILE (151/151) R [100.00%]	151 bytes	\My Videos\desktop.ini	
24021	\\DOG-WS\DOCUMENTS	FILE (42/42) R [100.00%]	42 bytes	\My Pictures\Sample Pictures\desktop.ini	
24186	\\DOG-WS\BLAH	FILE (1324022/1324022) W [100.00%]	1324kB	\Documents.zip	
25755	\\DOG-WS\BLAH	FILE (1014/1324022) R [ 0.00%]	1324kB	\DOCUME~1.ZIP	
25785	\\DOG-WS\BLAH	FILE (5110/1324022) R [ 0.00%]	1324kB	\DOCUME~1.ZIP	

Figure 1: Wireshark Export Object SMB list

This file was downloaded and inspected for evidence, the contents where mainly .docx files that were encode in Base64. Each .docx file was decode using CyberChef (GCHQ, 2020), the majority of the data seemed useless, being mostly rules for Chess Boxing and miscellaneous information. One file, named "track6.docx", contained a list of Usernames seen in figure 3, predominately being Wu-Tang Clan members, some affiliate rappers like Nas and Cappadonna (who joined the group in 2007), as well film director John Woo, who inspired the Wu-Tang song "A Better Tomorrow". The two outliers of the list are "Kim Ill-Song" and "Matt Cassel" who have no known relation to the other names. All of the encode and decoded documents can be found in Appendix A. A zipped file was also found in the downloaded file, once unzipped the contents appeared to be many empty folders, with the last being named "SilentEye", as seen in figure 2. SilentEye (SilentEye, 2020) is a steganography tool used to hide data within images or sound files, this hinted that the tool was used with the images found, so the software was downloaded and tested against each .jpg file. Nothing was found from this, each subsequent image found was also tested with SilentEye.

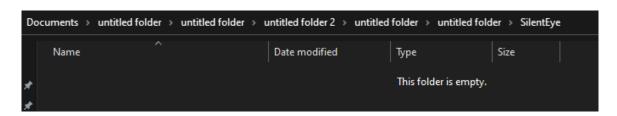


Figure 2: Unzipped empty folders

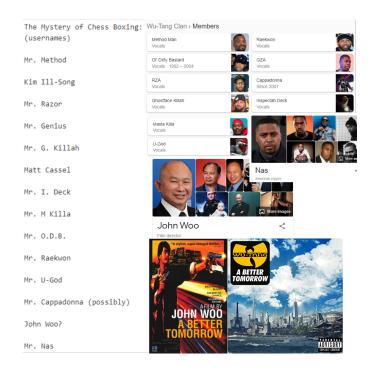


Figure 3: track6.docx Usernames with associated Wu-Tang Clan members

Two images were found in the downloaded files, each being a North Korean flag of different sizes with the names "NK.jpeg" and "NorthKorea.jpeg". Binwalk was used against each image to check for hidden contents, which revealed a hidden file within "NorthKorea.jpeg" as seen in figure 4, which was then extracted. The folder contained broken code written in Python, aptly named "broken.py".

[yix@arch Mor	e Documents]\$ bi	nwalk -e NorthKorea.jpeg
DECIMAL	HEXADECIMAL	DESCRIPTION
0 3453 untitled/	0×0 0×D7D	JPEG image data, JFIF standard 1.01 Zip archive data, at least v2.0 to extract, name:
3492	0xDA4 04, uncompressed 0x10A7	Zip archive data, at least v2.0 to extract, compre size: 1397, name: untitled/broken.py End of Zip archive, footer length: 22
4203	OXIONI	End of 21p archive, rooter tength. 22

Figure 4: Hidden Folder within "NorthKorea.jpg"

Another note-able file was named "NorthKorea.docx", which once decoded contained text written in Russian. The text was converted to English using Google Translate (Google, 2020) revealing the message seen in figure 5, claiming that the Korea Government have time travel technology. This is most likely a joke, but could have some forensic weight later in the investigation.

## For whom it may concern:

I have witnessed that Kim Jong Un and the North Korean government have developed a program that allows them to travel in time. With this technology, I believe they intend to move forward and change the outcome of the Korean War.

Please, Obi-Wan, you are my only hope.

Figure 5: Translated Russian text of "NorthKorea.docx"

A filter was placed on Wireshark to only show SMB traffic in an attempt to verify data and find any other potential evidence. Packet 23844 shows the user setting the Domain name to "fox-ws" and their username to "test", as well as the two IP addresses, the local being "172.29.1.23" and the remote being "172.29.1.20", as seen in figure 6. There is also evidence of the suspect snooping around the "Home" directory of the remote computer, clearing transferring the "Documents" directory over SMB.

23844 642.004		172.29.1.20	SMB	504 Session Setup AndX Request, NTLMSSP_AUTH, User: fox-ws\test
23845 642.006		172.29.1.23	SMB	175 Session Setup AndX Response
23848 642.075	412 172.29.1.23	172.29.1.20	SMB	136 Tree Connect AndX Request, Path: \\DOG-WS\IPC\$
23849 642.075	566 172.29.1.20	172.29.1.23	SMB	114 Tree Connect AndX Response
23850 642.131	518 172.29.1.23	172.29.1.20	SMB	158 NT Create AndX Request, FID: 0x4000, Path: \srvsvc
23851 642.131	867 172.29.1.20	172.29.1.23	SMB	193 NT Create AndX Response, FID: 0x4000
23852 642.132	369 172.29.1.23	172.29.1.20	SMB	130 Trans2 Request, QUERY_FILE_INFO, FID: 0x4000, Query File St
23853 642 132	380 172 29 1 20	172 29 1 23	SMR	142 Trans2 Response FTD: 0x4000 OHERY FTLE TNEO
Byte Cou	nt (BCC): 387			
✓ Security	Blob: 4e544c4d53535000	0030000001800180078000	000de00de00	90000000c000c0058000000
✓ NTLM	Secure Service Provider	r		
NT	LMSSP identifier: NTLMS	SSP		
NT	LM Message Type: NTLMSS	SP AUTH (0x00000003)		
> La	n Manager Response: 000	000000000000000000000000000000000000000	000000000000	000000000000
LM	v2 Client Challenge: 00	000000000000000		
> NT	LM Response: b1284a5c60	994bcc17b665207d4e87d0f	01010000000	0000005bf67fe9439dcf01078c7a95
	main name: fox-ws			
> <mark>Us</mark>	er name: test			
> Ho	st name: FOX-WS			
	ssion Key: 9e4263df0ce0	Ree934e7fh2af6ae7e59f		
	•		ntiate Kev H	Exchange, Negotiate 128, Negotiate Version, Negotiate Target Info,
	rsion 6.1 (Build 7601);			enemange, megociate zeo, megociate va sien en get into,
	C: 26b1d8a5ec1e2626d16c			
Native (		L/Dull/03u312		
	AN Manager:			
Nacive L	AN Hallagel .			

Figure 6: Wireshark with SMB filter, showing the Information of the suspect

## 2 Capture 2

Capture 2 was suspected to contain Internet Relay Chat(IRC) messages between various corrupted officials and the foreign national known as Ill-Song. From inspecting the Capture in Wireshark it was clear that IRC was used, however many of the messages appeared to be encoded. Tshark with grep was used to save all the IRC packets without added detail of packet numbers and stats, the command can be seen in figure 7.

```
C:\Users\Tom>tshark -r 'Capture 2.pcap' -q -z follow,tcp,ascii,0 | grep -i privmsg > output.txt
```

Figure 7: Tshark Grep command

Once extracted the messages where analysed and found to mostly be encoded with Base64 or Base32. A python script was created to decrypt all the messages at once, and highlight which messages were not encoded in Base64 or Base32 so they could be manually decoded using CyberChef. The full messages and python code can be found in Appendix B. The messages contain various conversations between Ill-Song and five different users, each using a usernames found previously in "track6.docx".

## User's Messaging with Ill-Song

Username: Razor1 Location: Paris, France

Accepted a Bribe: Yes, \$700,000

The first conversation was with a user named "Razor1", who "Ill-Song" attempts to "get you out of the City of Love", referring to Paris France, stating that is "Razor1"'s location. Figure 8 shows the two users negotiating over an appropriate bribe, with "Razor1" accepting \$700,000.

```
To: Razor1 From: Ill_Song

To: Ill_Song From: :Razor1!~malware@216.14.247.46

39

To: Razor1 From: Ill_Song

7

To: Ill_Song From: :Razor1!~malware@216.14.247.46

$700,000 it is. Where can I meet you?
```

Figure 8: Ill-Song Bribing Razor1

Username: Genius1

Location: Caracas, Venezuela Accepted a Bribe: Unknown

The second conversation takes place with "Genius1", one message contained a MD5 hash of "Caracas", which is the Capital city of Venezuela. The messages in figure 9 confirms this to be the location of "Genius1", as they state "No. Not here." when asked to meet there. No bribe is offered, and the two stop messaging shortly after, stating that they will continue the conversation through a more secure method, no messages where found after this point between them.

```
To: Genius1 From: Ill_Song
I can be in Caracas within the week.

To: Ill_Song From: :Genius1!~malware@216.14.247.46
No. Not here. Can I not go to you?
```

Figure 9: Ill-Song confirming Genius1's location

Username: Method Location: Unknown Accepted a Bribe: No

A short exchange is had between "Ill-Song" and "Method, in which "Ill-Song" attempts to bribe "Methods", which is unsuccessful. "Method" quickly ends the conversation by saying "Do not speak to me again".

Username: Killah Location: Qatar Accepted a Bribe: No

The location of "Killah" is quickly confirmed by the messages seen in figure 10, being the Country of Qatar. "Ill-Song" offers a bribe but is quickly rejected, with "Killah" stating "We do not take kindly to this pathetic notion of bribery", ending the conversation.

```
To: Killah From: Ill_Song
How is the weather in Qatar, Mr. Killah?

To: Ill_Song From: :Killah!~malware@216.14.247.46
Hot, as always. Who is this?
```

Figure 10: Ill-Song confirming Killah's location

Username: Raekwon Location: Russia Accepted a Bribe: Yes, 20 million Rubles

The final conversation proves to be very interesting, as "Ill-Song" reveals that "Raekwon" holds the position of an official of the executive committee of the ICBA. A requested bribe seen in figure 11 of 20 million Rubles is put forward by "Raekwon", which "Ill-Song accepts. The Rubel is national currency of Russia, so its fair to assume that "Raekwon" is located within Russia. A "Mr. Razor" is brought up at the start of the conversation, with "Raekwon" stating that he "won't be bought so easily", hinting that their is clearly more corruption taking place than just the actions of "Ill-Song".

```
To: Raekwon From: Ill_Song
Bought? Of course not. You are an official on the executive committee of the ICBA.

I just want you to know that I am here to help make your decision as easy as possible.

To: Ill_Song From: :Raekwon!~malware@216.14.247.46

I would need at least 20 million Rubles.
```

Figure 11: Ill-Song bribing Raekwon and revealing their position

From these IRC messages it is clear that "Ill-Song" is a Korean agent attempting to bribe officials into setting Pyongyang as the location for the Chess Boxing world title.

## 3 Capture 3

Capture 3 was suspected to contain traffic between a foreign national and a corrupted official, with evidence that they were using File Transfer Protocol to communicate and share files. The Capture was loaded into Wireshark, where an FTP filter was placed. The TCP stream revealed that two .zip files had been transferred, being "sandofwhich.zip" and "ojd34.zip", which were both saved in RAW format. The two .zip files where extracted using Binwalk, revealing that they both contained many image files, as seen in figure 12. However, only one of these images, being "I.jpg", would open, and seemed to be missing the majority of the image.

DECIMAL	HEXADECIMAL	DESCRIPTION
	0×0	 Zip archive data, at least ν2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/destroy.jpg
.123	0x463	Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/for.jpg
242	0x8C2	Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/freedom.jpg
365	0xD25	Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/good.jpg
485	0×1185	Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/government.jpg
611	0×15EB	Zip archive data, at least v2.0 to extract, compressed size: 860, uncompressed size: 1070, name: sandofwhich/I.jpg
518	0x1976	Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: sandofwhich/in.jpg
7636	0×1DD4	Zip archive data, at least v2.0 to extract, compressed size: 5436, uncompressed size: 5436, name: sandofwhich/NSA.jpg
.3121	0x3341	Zip archive data, at least v2.0 to extract, compressed size: 5436, uncompressed size: 5436, name: sandofwhich/rights.jpg
.8609	0x48B1	Zip archive data, at least v2.0 to extract, compressed size: 5436, uncompressed size: 5436, name: sandofwhich/security.jpg
4770	0x60C2	Find of 7th analysis factor learns to 20
	Downloads]\$ binwa	End of Zip archive, footer length: 22 lk ojd34.raw
yix@arch		
yix@arch	Downloads]\$ binwa	lk ojd34.raw
yix@arch   ECIMAL 	Downloads]\$ binwa HEXADECIMAL	Lk ojd34.raw  DESCRIPTION
yix@arch   ECIMAL 	Downloads]\$ binwa HEXADECIMAL  0x0	lk ojd34.raw  DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg
yix@arch   ECIMAL  115 228	Downloads]\$ binwa  HEXADECIMAL  Ox0  0x45B	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg
yix@arch   ECIMAL  115 228 344	Downloads]\$ binwa HEXADECIMAL 0x0 0x45B 0x8B4	lk ojd34.raw  DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/around.jpg
yix@arch   ECIMAL  115 228 344 459	Downloads]\$ binwa  HEXADECIMAL 0x0 0x45B 0x8B4 0xD10	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/around.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/basic.jpg
yix@arch   ECIMAL  115 228 344 459 491	Downloads]\$ binwa  HEXADECIMAL  0x0 0x45B 0x8B4 0xD10 0x16B	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/ard.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/around.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/basic.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1051, name: ojd34/building.jpg
yix@arch   ECIMAL  115 228 344 459 491 489	Downloads]\$ binwa  HEXADECIMAL  9x0 0x45B 0x8B4 0x010 0x116B 0x1573	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1073, name: ojd34/around.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/building.jpg Zip archive data, at least v2.0 to extract, compressed size: 984, uncompressed size: 1051, name: ojd34/cant.jpg Zip archive data, at least v2.0 to extract, compressed size: 984, uncompressed size: 1070, name: ojd34/cant.jpg
Eyix@arch   DECIMAL 	Downloads]\$ binwa  HEXADECIMAL	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/around.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/basic.jpg Zip archive data, at least v2.0 to extract, compressed size: 984, uncompressed size: 1070, name: ojd34/baiding.jpg Zip archive data, at least v2.0 to extract, compressed size: 984, uncompressed size: 1070, name: ojd34/cont.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/conscience.jpg
	Downloads]\$ binwa  HEXADECIMAL  9x0  9x45B  9x8B4  9x106  9x116B  9x11573  9x1959  9x1D89	DESCRIPTION  Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/allow.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/and.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/around.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/basic.jpg Zip archive data, at least v2.0 to extract, compressed size: 054, uncompressed size: 1051, name: ojd34/building.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/cant.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/cant.jpg Zip archive data, at least v2.0 to extract, compressed size: 1070, uncompressed size: 1070, name: ojd34/cant.jpg

Figure 12: Binwalk result for sandofwhich.zip and ojd34.zip

The filenames were also unusual, seeming to be random words from a full sentence, and happened to match closely to a quote from Edward Snowden, a controversial whistleblower formerly associated with the National Security Agency (NSA). Certain words from the quote appeared to be missing from the available .jpeg files, so further investigation was conducted on Capture 3, which revealed 3 more .zip files, named "34jdsioj.zip", "breaking\_bad\_season\_6.zip" and "canc3l.zip". Each .zip file contents were extracted into a separate .pcap file, then exported as in RAW format before Binwalk was used to acquire all the remaining images. Each word from the quote seen in figure 13 was now present, so a "cat" command was used to reconstruct the image.

"I can't in good conscience allow the U.S. government to destroy privacy, internet freedom and basic liberties for people around the world with this massive surveillance machine they're secretly building." -Edward Snowden

Figure 13: Edward Snowden Quote



Figure 14: Constructed image from the Edward Snowden Quote

The reconstructed image appears to be a futuristic chess board. There were still a lot of remaining images, with only two being able to open, suggesting that the remaing .jpg files could be used to reconstruct two more working images. Both were images were fixed in a similar manner, and can be found in Appendix C, along with the code used to remake them. SilentEye was used on each image, revealing that the first reconstructed image(Edward.jpg in this case) contained the message seen in figure 15.

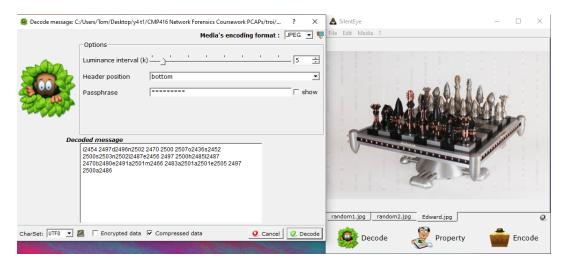


Figure 15: SilentEye result on Edward.jpg

if \_\_name\_\_ == "\_\_main\_\_":
 encoded = "12454 2497d2496n2502 2470 2500 2507o2436s2452 2500s2503n250212487e2456 2497 2500h248512487 2470b2490e2491a2501m2466 2483a2501a2501e2505 2497 2500a2486"
 name = "\_\_main\_\_":
 encoded = "12454 2497d2496n2502 2470 2500 2507o2436s2452 2500s2503n250212487e2456 2497 2500h248512487 2470b2490e2491a2501m2466 2483a2501a2501e2505 2497 2500a2486"
 print(indexInASCII(encoded, name))

Figure 16: Broken.py completed with additional message  $\,$ 

This encoded message was then used to complete "broke.py", found in Capture 1, which revealed the password of "DontTry2BruteForceThisPassword". The completed script for "broken.py" can be found in Appendix C.

## 4 Capture 4

Capture 4 was suspected to contain messages between "Ill-Song" and "Ann Dercover", who was taking part in this international corruption case. Evidence suggested that the two were trying to arrange a rendezvous, so Wireshark filters were used to search for communication methods. It appeared that "Textfree", a free texting service over internet, was being used to communicate. Textfree uses JSON to send text, so a filter was put in place which revealed certain texts from the suspects, however there was also a lot of miscellaneous packets. Looking at the TCP stream of certain packets revealed the Sender and Recipient ID of the two suspects, meaning a more efficient filter could be put in place to show only messages.

### Messages

Kim Ill-Song: Good afternoon, Ann.

Ann Dercover: who is this? Kim Ill-Song: Castling. Ann Dercover: where are you

Kim Ill-Song: I know I can't tell you that

Ann Dercover: Do you know that there are people investigating Kim Ill-Song? Kim Ill-Song: Of course. However, they will never know it is me behind the bribes.

Ann Dercover: still we should be careful. Pay attention. I want to meet in September at 5PM.

Kim Ill-Song: At our old meetup spot?

Ann Dercover: yes

Kim Ill-Song: What day?

Ann Dercover: I told you to pay attention.

Figure 17: Messages sent between Ill-Song and Ann Dercover

The messages reveal a lot of information, including evidence that "Kim Ill-Song" is an imposter/impersonator, as the suspect responds with "Castling" when asked who they are. Furthermore, "Ann Dercover" states that she is the one sending the bribes, suggesting that the real "Kim Ill-Song" is being framed for their corruption. The two arrange to meet at their "old meetup spot" sometime in September at 5PM, with no further messages confirming a date, however there is hints that "Ann Dercover" gave a day.

Further analysis of the packets between messages show many requests to "mob.mapquestapi.com", each containing coordinates, evidence that information had been sent through Geocoding. All of the associated packets where saved to a text file, before a python script was used to remove all data but the coordinates.

tshark -r 'Capture 4.pcap -Y "http.host == mob.mapquestapi.com" > locations.txt

Figure 18: Python script to strip URLS leaving just coordinates

The resulting .csv file was then converted into a .KML file using "Excel To KML" (Earth point, 2020), which was subsequently opened in Google earth revealing figure 19. Investigators concluded that this was the day of the meeting, as "Ann Dercover" had refused to specify, leaving the date of the rendezvous being 5PM September 17th.

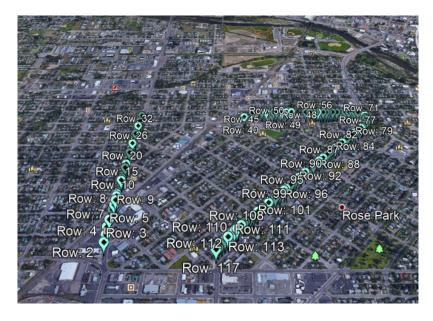


Figure 19: Salt Lake City, Utah, revealing the date of the meeting

## 5 Summary of Findings

## 5.1 Capture 1

The first capture revealed a .zip file that had been downloaded by the suspect, which at first appeared to only contain miscellaneous encoded documents. One of the documents contained a list of usernames, most of which relating to the "Wu-Tang Clan", which were revealed to be alias' for the suspect and corrupted officials in Capture 2s IRC messages. The name "SilentEye" appeared in a series of empty folders, which was discovered to be a piece of steganography software, suggesting that information was hidden in images. One image in the .zip file contained a hidden python code, that appeared to be incomplete for the time being.

## 5.2 Capture 2

Capture 2 contained IRC communication between "Ill-Song" and various officials, all using aliases. The suspect attempted to bribe officials from several different countries into hosting the Chess Boxing competition in Pyongyang, with several accepting the money offered.

### 5.3 Capture 3

FTP traffic revealed that several .zip files were transferred across throughout Capture 3, each were recovered and analysed. The contents appeared to be an incomplete image, and the filenames appeared to match a famous Edward Snowden quote. Three images were reconstructed, and once run through the "SilentEye" software revealed the missing part of the Python code found in Capture 1. The completed code revealed the text "DontTry2BruteForceThisPassword", however no use was found this password.

### 5.4 Capture 4

A conversation between "Kimm Ill-Song" and a "Ann Dercover" was retrieved in Capture 4. The messages state that the two plan to meet up, and that "Kim Ill-Song" is an impersonator, who's real name (or actual username) is "Castling". The meetup date was never stated, however many coordinates where found in URLs sent whilst the two were messaging. These coordinates were extracted and input into Google Earth, revealing a large "17" in Salt Lake city, Utah. This was interpreted as being the date of the meeting, being 5PM September 17th, with an undisclosed location, but could possibly be Salt Lake city.

## 6 References

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## 7 APPENDIX A - Capture 1

## 7.1 GoT Spoilers.docx

Encoded

Sm9uIFNub3cgYnVybnMgZG93biBXaW50ZXJmZWxsIChhZ2FpbikgYW5kIHRoZSBXYWxsLg0KDQpIb2RvciBraWxscyBUaGVvbi4NCg0KRGFlbmVyeXMgZ2V0cyBlYXRlbiBieSBhIGRyYWdvbi4NCg0KU3Rhbm5pcyBmYWxscyBpbiBsb3ZlIHdpdGggVHlyaW9uLiANCg0KDQo=

### Decoded

Jon Snow burns down Winterfell (again) and the Wall.

Hodor kills Theon.

Daenerys gets eaten by a dragon.

Stannis falls in love with Tyrion.

#### 7.2 NorthKorea.docx

#### Encoded

0JTQu9GPINC60L7Qs9C+INGN0YLQviDQvNC+0LbQtdGCINC60LDRgdCw0YLRjNGB
0Y86IA0KDQrQryDQsdGL0Lsg0YHQstC40LTQtdGC0LXQu9C10LwsINGH0YLQviDQ
mtC40Lwg0KfQtdC9INCj0L0g0Lgg0L/RgNCw0LLQuNGC0LXQu9GM0YHRgtCy0L4g
0KHQtdCy0LXRgNC90L7QuSDQmtC+0YDQtdC4INGA0LDQt9GA0LDQsdC+0YLQsNC
70Lgg0L/RgNC+0LPRgNCw0LzQvNGDLCDQutC+0YLQvtGA0LDRjyDQv9C+0LfQstC+
0LvRj9C10YIg0LjQvCDQv9GD0YLQtdGI0LXRgdGC0LLQvtCy0LDRgtGMINCy0L4g0L
LRgNC10LzQtdC90LguINChINC40YHQv9C+0LvRjNC30L7QstCw0L3QuNC10Lwg0Y
3RgtC+0Lkg0YLQtdGF0L3QvtC70L7Qs9C40LgsINGPINGB0YfQuNGC0LDRjiwg0YfRg
tC+INC+0L3QuCDQvdCw0LzQtdGA0LXQvdGLINC00LLQuNCz0LDRgtGM0YHRjyDQs
tC/0LXRgNC10LQg0Lgg0LjQt9C80LXQvdC40YLRjCDRgNC10LfRg9C70YzRgtCw0YL
RiyDQstC+0LnQvdGLINCyINCa0L7RgNC10LUuIA0KDQrQn9C+0LbQsNC70YPQudG
B0YLQsCwg0J7QsdC4LdCS0LDQvSwg0YLRiyDQvNC+0Y8g0LXQtNC40L3RgdGC0LL
QtdC90L3QsNGPINC90LDQtNC10LbQtNCwLg0KDQo=

#### Decoded

Для кого это может касаться:

Я был свидетелем, что Ким Чен Ун и правительство Северной Кореи разработали программу, которая позволяет им путешествовать во времени. С использованием этой технологии, я считаю, что они намерены двигаться вперед и изменить результаты войны в Корее.

Пожалуйста, Оби-Ван, ты моя единственная надежда.

## For whom it may concern:

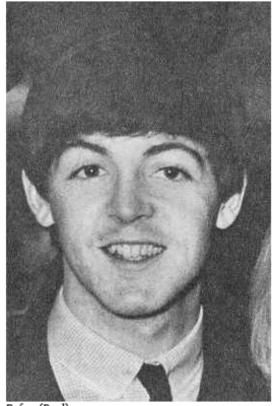
I have witnessed that Kim Jong Un and the North Korean government have developed a program that allows them to travel in time. With this technology, I believe they intend to move forward and change the outcome of the Korean War.

Please, Obi-Wan, you are my only hope.

### 7.3 PiD.docx

### Encoded

RGVhciBFZCwNCg0KWWVhaCBJIHRvdGFsbHkgdG9vayBvdmVyIGZvciBQYXVsIGFm dGVyIGhlIGRpZWQgaW4g4oCZNjYuIFlvdSBnb3QgbWUuIEFzIHlvdSBjYW4gc2VlLCB 3ZSBkb27igJl0IGV2ZW4gbG9vayB0aGF0IG11Y2ggYWxpa2U6DQo=





Before(Paul)

After(Me)

IAkgCQ0KQmVmb3JlKFBhdWwpIAkJCQkJQWZ0ZXIoTWUpDQoNCldlIGFyZW7igJl0I GV2ZW4gdGhlIHNhbWUgaGVpZ2h0ISBXaGF0IGNhbiBJIHNheSwgcGVvcGxlIGFyZSB zdHVwaWQuDQoNCg0KVGhhbmtzIGZvciB0aGUgaW5xdWlyeSwNCg0KV2lsbGlhbSBDYW1wYmVsbA0KKFBhdWwgTWNDYXJ0bmV5KQ0K

### $\mathbf{Decoded}$

Dear Ed,

Yeah I totally took over for Paul after he died in '66. You got me. As you can see, we don't even look that much alike:

Before(Paul) After(Me)

We aren't even the same height! What can I say, people are stupid.

Thanks for the inquiry,

William Campbell (Paul McCartney)

## 7.4 NK.png



### 7.5 Rules 1.docx

#### **Encoded**

MS4gICBTVU1NQVJZIE9GIFJVTEVTLiAgTUFJTiBQT0l0VFMuDQpUT1VDSCBNT1ZFI HJ1bGUgc3RyaWN0bHkgYXBwbGllcy4NCuKAoglJZiBhIHBpZWNlIGlzIHRvdWNoZW QsIHRoZW4gaXQgbXVzdCBiZSBtb3ZlZCAoaWYgYSBsZWdhbCBtb3ZlIGlzIGF2YWlsY WJsZSkNCuKAoglJZiBhbiBvcHBvbmVudOKAmXMgcGllY2UgaXMgdG91Y2hlZCwgaX QgbXVzdCBiZSB0YWtlbiAoaWYgbGVnYWwpLg0KQ09VTlRET1d0IElGIFNUQUxMSU 5HIEZPUiBUSU1FLkluIGdlbmVyYWwgYSBwbGF5ZXIgbWFuYWdlcyBob3cgbXVjaCB vciBsaXR0bGUgdGltZSB0byB0YWtlIGZvciBlYWNoIG1vdmUsIGFuZCB0aGlzIGlzIGZp bmUhICBIb3dldmVyLCBpZiBhIHBsYXllciBjbGVhcmx5IHBsYXlzIGZhciB0b28gc2xvd 2x5IGZvciB0aGUgc3BlY2lmaWMgcG9zaXRpb24sIGZvciBleGFtcGxlIHdoZW4gaGUga XMgZmFjaW5nIHVuYXZvaWRhYmxlIGNoZWNrbWF0ZSwgdGhlIGFyYml0ZXIgd2lsb CBkbyBhIGNvdW50ZG93bi4gIEhlIHdpbGwgcG9pbnQgYXQgdGhlIGJvYXJkLCBhbmQ gd2FybiB0aGUgcGxheWVyIGJ5IGNvdW50aW5nIHRvIDEwIHdpdGggaGlzIGhhbmRzI ChqdXN0IGxpa2UgYSBib3hpbmcgcmVmZXJlZSkuICBJZiB0aGUgcGxheWVyIGhhcyBu b3QgbW92ZWQgYnkgdGhlIGNvdW50IG9mIDEwLCBoZSBsb3NlcyB0aGUgZ2FtZSBh bmQgdGhlIG1hdGNoLiBOb3RlIHRoZXJlIGlzIG5vIG1pbmltdW0gdGltZSB0byBtYWtlI GEgbW92ZSEgQWxzbywgZXZlbiBpZiB0aGVyZSBpcyBvbmx5IDEgbGVnYWwgbW92 ZSwgdGhlIHBsYXllciBzaG91bGQgYmUgYWxsb3dlZCBzb21lIHRpbWUgdG8gcHN5Y2 hvbG9naWNhbGx5IGNvbXBvc2UgdGhlbXNlbHZlcy4gIEl0IHNob3VsZCBiZSBjb25za WRlcmVkIHRoYXQgYSB3ZWFrIHBsYXllciBtYXkgbm90IHJlYWxpc2UgaGUgb25seSB oYXMgMSBsZWdhbCBtb3ZlLg0KQ0hFU1MgQ0xPQ0sgUFJPVE9DT0wuICBUaGUgY2 hlc3MgY2xvY2sgbXVzdCBiZSBwcmVzc2VkIHdpdGggdGhlIFNBTUUgSEFORCB0aGF0 IG1vdmVzIHRoZSBwaWVjZS4NCIBSRVNTSU5HIENIRUNLIENMT0NLLiAgSXQgaXM gdGhlIHBsYXllcuKAmXMgcmVzcG9uc2liaWxpdHkgdG8gcHJlc3MgaGlzIG9yIGhlciBjb G9jayBiZXR3ZWVuIGNoZXNzIG1vdmVzLiBUaGUgY29tcGV0aXRvcnMgbWF5IGFncm VIIGluIGFkdmFuY2UgdG8gYWxsb3cgdGhlIGFyYml0ZXIgdG8gaXNzdWUgcmVtaW5k ZXJzIOKAkyBlc3BlY2lhbGx5IGlmIGJvdGggZmlnaHRlcnMgYXJlIG5ldyB0byBjaGVzc2J veGluZy4NClBJRUNFUyBLTk9DS0VEIERPV04gT1IgTk9UIFBST1BFUkxZIE90IEEgU 1FVQVJFLiAgSWYgYSBwbGF5ZXIga25vY2tzIGRvd24gYSBwaWVjZSB3aGlsc3QgbWF raW5nIGEgbW92ZSBvciBkb2VzIG5vdCBwdXQgaXQgcHJvcGVybHkgb24gYSBzcXVhc mUsIGhlIHNob3VsZCBwcm9wZXJseSByZS1wb3NpdGlvbiBvciByZS1jZW50cmUgdG hlIHBpZWNlIGluIEhJUyBPV04gY2xvY2sgdGltZS4gIEFuIG9mZmVuY2UgdGhhdCBwd XRzIG9mZiB0aGUgb3Bwb25lbnQgY291bGQgYmUgcHVuaXNoZWQgYnkgYWRkaW5 nIHRpbWUgdG8gdGhlIG9wcG9uZW504oCZcyBjbG9jay4NCiANCk9USEVSIFJVTEVTI HRvIE5PVEUNCuKAogkgUmVzaWduYXRpb24gcHJvdG9jb2wuICBGb3IgdGhlIGJlbm VmaXQgb2YgdGhlIGF1ZGllbmNlLCBwbGF5ZXJzIGFvZSBzdHJvbmdseSBlbmNvdXJhZ 2VkIHRvIHBsYXkgdW50aWwgY2hlY2ttYXRlLiBJZiB5b3Ugd2FudCB0byByZXNpZ24 gKHN1Ym1pdCkgcHJpb3IgdG8gY2hlY2ttYXRlLCBkbyB0aGlzIGJ5IGtub2NraW5nIG9 2ZXIgeW91ciBraW5nIGFuZCBvZmZlcmluZyBhIGhhbmRzaGFrZS4NCuKAoglJbGxlZ2 FsIG1vdmUuICBBbiBpbGxlZ2FsIG1vdmUgbXVzdCBiZSByZXRyYWN0ZWQuICBUaGU gYXJiaXRlciBoYXMgdGhlIGRpc2NyZXRpb24gdG8gcHVuaXNoIHdpdGggYSB0aW1IIH BlbmFsdHksIG9yIGRpc3F1YWxpZnkgYWZ0ZXIgMyBpbGxlZ2FsIG1vdmVzLiAgRXh0 cmEgYWxsb3dhbmNlcyBjYW4gYmUgbWFkZSBmb3Igbm92aWNlIHBsYXllcnMuDQr igKIJU3BlYWtpbmcgdG8gdGhlIGFyYml0ZXIuICBJZiBhIHBsYXllciBuZWVkcyB0byBzc GVhayB0byB0aGUgYXJiaXRlciBkdXJpbmcgdGhlIGNoZXNzIGdhbWUsIGhlIHNob3VsZ CByZW1vdmUgaGlzIGhlYWRwaG9uZXMuICBUaGUgYXJiaXRlciB3aWxsIHRoZW4gc3 RvcCB0aGUgY2xvY2sgdG8gbGlzdGVuLg0K4oCiCVBsYXlpbmcgdG8gd2luIG9uIHRpb

WUuICBJZiBhIHBvc2l0aW9uIGlzIGEgY29tcGxldGVseSBkcmF3biBwb3NpdGlvbiwgY W5kIHRoZSBhcmJpdGVyIGJlbGlldmVzIGEgcGxheWVyIGlzIHF1aWNrbHkgbW92aW 5nIHBpZWNlcyBvbmx5IHRvIHdpbiBvbiB0aW1lLCB0aGVuIHRoZSBhcmJpdGVyIGN hbiBkZWNsYXJIIHRoZSBnYW1IIGEgZHJhdy4NCuKAoglDaGVzcyBEcmF3LiAgQSBjaG VzcyBkcmF3IHdpbGwgYmUgZm9sbG93ZWQgYnkgb25lIGJveGluZyByb3VuZCAodW 5sZXNzIHRoZSBtYXhpbXVtIG51bWJlciBvZiBib3hpbmcgcm91bmRzIGhhcyBhbHJlY WR5IGhhcHBlbmVkKS4gVGhlIGNoZXNzYm94aW5nIGJvdXQgd2lsbCB0aGVyZWZvc mUgYmUgd29uIGJ5IHdob2V2ZXIgaGFzIGFtYXNzZWQgdGhlIG1vc3QgYm94aW5nIH BvaW50cyDigJMganVkZ2VkIGJ5IHB1bmNoZXMgdGhyb3duIGFuZCBvdmVyYWxsIG FnZ3]lc3Npb24uDQrigKI]RHJpbmtzICBGaWdodGVycyBhcmUgYWxsb3dlZCB0byBic mluZyB3YXRlciB0byB0aGUgY2hlc3MgdGFibGUuDQrigKIJQ3V0cyBJbiBtb3N0IGNhc 2VzLCBleGNlcHQgZm9yIHRoZSBtb3N0IHN1cGVyZmljaWFsIGV4YW1wbGVzLCBhIG N1dCB3aWxsIGxlYWQgdG8gdGhlIGZpZ2h0IGJlaW5nIHN0b3BwZWQgYW5kIGEgVE tPIGRIY2xhcmVkLg0K4oCiCUdlbmVyYWwgQWR2aWNIIENvbXBldGl0b3JzIGFyZSBy ZW1pbmRlZCB0aGF0IHRoZXkgZG8gbm90IG5lZWQgdG8gbW92ZSBxdWlja2x5LCBl dmVuIGlmIHRoZWlyIG9wcG9uZW50IG1vdmVzIHF1aWNrbHkuIEFkcmVuYWxpbm UgZHJhc3RpY2FsbHkgY2hhbmdlcyB5b3VyIHNlbnNlIG9mIHRpbWUuICBFeHBlcmll bmNlIHNob3dzIHRoYXQgYSBwbGF5ZXIgaXMgT0sgdW50aWwgaGUgaGFzIDIgbWlu dXRlcyBvZiB0aW1lIHJlbWFpbmluZyBvbiB0aGUgY2xvY2ssIHdoZW4gbW92ZXMgc2 hvdWxkIGJlIHNwZWVkZWQgdXAuDQo=

#### Decoded

1. SUMMARY OF RULES. MAIN POINTS.

TOUCH MOVE rule strictly applies.

- If a piece is touched, then it must be moved (if a legal move is available)
- If an opponent's piece is touched, it must be taken (if legal).

COUNTDOWN IF STALLING FOR TIME.In general a player manages how much or little time to take for each move, and this is fine! However, if a player clearly plays far too slowly for the specific position, for example when he is facing unavoidable checkmate, the arbiter will do a countdown. He will point at the board, and warn the player by counting to 10 with his hands (just like a boxing referee). If the player has not moved by the count of 10, he loses the game and the match. Note there is no minimum time to make a move! Also, even if there is only 1 legal move, the player should be allowed some time to psychologically compose themselves. It should be considered that a weak player may not realise he only has 1 legal move.

CHESS CLOCK PROTOCOL. The chess clock must be pressed with the SAME HAND that moves the piece.

PRESSING CHECK CLOCK. It is the player's responsibility to press his or her clock between chess moves. The competitors may agree in advance to allow the arbiter to issue reminders – especially if both fighters are new to chessboxing.

PIECES KNOCKED DOWN OR NOT PROPERLY ON A SQUARE. If a player knocks down a piece whilst making a move or does not put it properly on a square, he should properly re-position or re-centre the piece in HIS OWN clock time. An offence that puts off the opponent could be punished by adding time to the opponent's clock.

OTHER RULES to NOTE

- Resignation protocol. For the benefit of the audience, players are strongly encouraged to play until checkmate. If you want to resign (submit) prior to checkmate, do this by knocking over your king and offering a handshake.
- Illegal move. An illegal move must be retracted. The arbiter has the discretion to punish with a time penalty, or disqualify after 3 illegal moves. Extra allowances can be made for novice players.
- Speaking to the arbiter. If a player needs to speak to the arbiter during the chess game, he should remove his headphones. The arbiter will then stop the clock to listen.
- Playing to win on time. If a position is a completely drawn position, and the arbiter believes a player is quickly moving pieces only to win on time, then the arbiter can declare the game a draw.
- Chess Draw. A chess draw will be followed by one boxing round (unless the maximum number of boxing rounds has already happened). The chessboxing bout will therefore be won by whoever has amassed the most boxing points judged by punches thrown and overall aggression.
- Drinks Fighters are allowed to bring water to the chess table.
- Cuts In most cases, except for the most superficial examples, a cut will lead to the fight being stopped and a TKO declared.
- General Advice Competitors are reminded that they do not need to move quickly, even if their opponent moves quickly. Adrenaline drastically changes your sense of time. Experience shows that a player is OK until he has 2 minutes of time remaining on the clock, when moves should be speeded up.

#### 7.6 Rules 2.docx

#### **Encoded**

IDIuICAgRU5GT1JDRU1FTlQgT0YgQ0hFU1MgUlVMRVMNCiBJbiB0aGUgZXZlbnQgb 2YgYSBicmVhY2ggb2YgdGhlIHJ1bGVzIGEgcGVuYWx0eSBjYW4gYmUgaW1wb3NlZC BhdCB0aGUgYXJiaXRlcuKAmXMgZGlzY3JldGlvbi4NCiANCg0K

### Decoded

2. ENFORCEMENT OF CHESS RULES

In the event of a breach of the rules a penalty can be imposed at the arbiter's discretion.

#### 7.7 Rules 3.docx

#### Encoded

My4gIFBFTkFMVEIFUyBGT1IgUIVMRSBCUkVBQ0hFUw0KQSBjaGVzcyBwZW5hbHR5IGNvdWxk
IHRha2UgdGhlIGZvcm0gb2Y6DQrigKIJVGhlIG9mZmVuY2Ugd2lsbCBhY3QgYXMgYSB0aWUtYnJI
YWsgaWYgYm90aCB0aGUgYm94aW5nIGFuZCBjaGVzcyBhcmUgZHJhd24ulCBUaGlzIGlzIHRoZSBt
aW5pbXVtlChkZWZhdWx0KSBwZW5hbHR5IGFuZCBhcHBsaWVzIGlmIHRoZXJIIGlzIG5vIG90aGV
yIHBlbmFsdHkuDQrigKIJMzAgc2Vjb25kcyBpcyBzdWJ0cmFjdGVkIGZyb20gdGhlIG9mZmVuZGVy4o
CZcyBjbG9jay4NCuKAoglGb3JmZWl0IG9mIHRoZSBib3V0LiBUaGlzIGNvdWxkIG9jY3VyIGZvciBhI
HNlcmlvdXMgZGlzY2lwbGluYXJ5IG9mZmVuY2UsIGRlbGliZXJhdGUgZm91bCBwbGF5IG9yIGEgc
mVwZWF0ZWQgYnJIYWNoIChlLmcuIGEgdG90YWwgb2YgMyBpbGxlZ2FsIG1vdmVzKS4NCg==

#### Decoded

- 3. PENALTIES FOR RULE BREACHES
- A chess penalty could take the form of:
- The offence will act as a tie-break if both the boxing and chess are drawn. This is the minimum (default) penalty
  and applies if there is no other penalty.
- 30 seconds is subtracted from the offender's clock.
- Forfeit of the bout. This could occur for a serious disciplinary offence, deliberate foul play or a repeated breach (e.g. a total of 3 illegal moves).

#### 7.8 Rules 4.docx

#### **Encoded**

NC4gICBDSEVTUyBDTE9DSyBNQUxGVU5DVEIPTg0KSW4gdGhlIHVubGlrZWx5IGV 2ZW50IHRoZSBlbGVjdHJvbmljIGNoZXNzIGNsb2NrIGNlYXNlcyB0byBvcGVyYXRIIGR 1cmluZyBhIGNoZXNzIHJvdW5kLCB0aGUgYXJiaXRlciB3aWxsIGRvIG9uZSBvZiBmb2 xsb3dpbmcsIGRlcGVuZGluZyBvbiB0aGUgZXN0aW1hdGVkIGRpc3J1cHRpb24gdG8g dGhlIHBsYXllcnMgYW5kIHNwZWN0YXRvcnM6DQrigKIJU3RvcCB0aGUgY2xvY2sgY W5kIHJlc29sdmUgdGhlIHByb2JsZW0uDQrigKIJU3RvcCB0aGUgY2xvY2sgYW5kIHJlc GxhY2UgaXQgd2l0aCBhIG5ldyBjbG9jay4gIFRoaXMgYWN0aW9uIGlzIG1vc3QgbGlrZ Wx5IGlmIHRoZXJlIGlzIGEgcmVwZWF0ZWQgbWFsZnVuY3Rpb24sIG9yIGl04oCZcyB vbmUgb2YgdGhlIGxhdGVyIGNoZXNzIHJvdW5kcyB3aGVyZSBhIHBsYXllciBpcyBzaG9 ydCBvZiB0aW1lLg0KDQoNCg==

#### Decoded

4. CHESS CLOCK MALFUNCTION

In the unlikely event the electronic chess clock ceases to operate during a chess round, the arbiter will do one of following, depending on the estimated disruption to the players and spectators:

- Stop the clock and resolve the problem.
- Stop the clock and replace it with a new clock. This action is most likely if there is a repeated malfunction, or it's one of the later chess rounds where a player is short of time.

### 7.9 Rules 5.docx

#### **Encoded**

NS4gICBXQ0JBIENIRVNTIFJVTEVTIEZPUiBDSEVTU0JPWElORw0KQ2hlc3MgdG91cm5hbWVudC BydWxlcyBoYXZlIGxlZ2FsIHBvaW50cyB0aGF0IGNhc3VhbCBwbGF5ZXJzIG1heSBiZSB1bmZhbWls aWFyIHdpdGguICBUaGUgb2ZmaWNpYWwgbGF3cyBvZiBjaGVzcyBhcmUgb24gdGhlIHdlYnNpdGU gb2YgRklERSwgdGhlIGNoZXNzIGdvdmVybmluZyBib2R5IGh0dHA6Ly93d3cuZmlkZS5jb20vY29tcG9 uZW50L2hhbmRib29rLz9pZD0zMmFuZHZpZXc9Y2F0ZWdvcnkuDQpIaWdobGlnaHRlZCBiZWxvdyB hcmUgbGVnYWwgcG9pbnRzIHRoYXQgY2F1c2UgbW9zdCBkaXNwdXRlcyBpbiB0b3VybmFtZW50I GNoZXNzIHNpdHVhdGlvbnMuDQpJbiBhZGRpdGlvbiwgc29tZSBjaGVzc2JveGluZyBsYXdzIGRpZmZ lciBmcm9tIEZJREUgcnVsZXMgaW4gb3JkZXIgdG8gKGkuKSBlbnN1cmUgdGhlIHBheWluZyBwdWJs aWMgaXMgZW50ZXJ0YWluZWQsIChpaS4pIGtlZXAgdGhlIGdhbWUgZmxvd2luZyB3aXRoIG1pbmlt YWwgZGlzcnVwdGlvbiwgYW5kIChpaWkuKSBtaW5pbWlzZSB2ZXJiYWwgY29tbXVuaWNhdGlvbiB 3aXRoIHRoZSBjb21wZXRpdG9ycy4gVGhlc2UgZGlmZmVyZW5jZXMgYXJlIGhpZ2hsaWdodGVkIHd oZXJIIHRoZXkgb2NjdXIuDQogDQpUb3VjaCBtb3ZlDQrigKIJT25jZSBhIHBpZWNIIGlzIHRvdWNoZ 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#### Decoded

#### 5. WCBA CHESS RULES FOR CHESSBOXING

Chess tournament rules have legal points that casual players may be unfamiliar with. The official laws of chess are on the website of FIDE, the chess governing body http://www.fide.com/component/handbook/?id=32andview=category.

Highlighted below are legal points that cause most disputes in tournament chess situations.

In addition, some chessboxing laws differ from FIDE rules in order to (i.) ensure the paying public is entertained, (ii.) keep the game flowing with minimal disruption, and (iii.) minimise verbal communication with the competitors. These differences are highlighted where they occur.

#### Touch move

- Once a piece is touched it MUST be moved, unless "J'adoube" is indicated before touching the piece. If no legal move is admissible, then any other piece can be moved without punishment.
- Once an opponent's piece is touched it must be captured if there is such a legal move. If it cannot be captured the offender receives no penalty and is free to move without restriction.

#### Castling touch move

When castling you MUST touch the king first. If you touch the rook first, then you cannot castle, but you must move the rook because of the touch-move rule.

#### Hand is taken off a piece

When a piece is moved and the hand taken off the piece, the move cannot be retracted - the piece cannot be moved to a different square.

#### Illegal move

The arbiter will point out the illegal move if it goes unnoticed. Since the punishment for an illegal move is not as severe in chessboxing as in FIDE blitz chess laws, the arbiter will not allow the possibility of an illegal move going uncorrected.

#### "J'Adoube" rule.

Normal Chess Rules

- If a piece is off centre and is annoying you, state "j'adoube" or "I adjust" BEFORE adjusting its position on the square. One of these phrases should be used regardless of the player's home language.
- If you state "j'adoube" after or during the piece adjustment, then it counts as a touch move.
- You should only adjust pieces whilst your clock is running. Adjusting during your opponent's time is forbidden as
  it is a distraction.

Chessboxing Rules (adapted because both players have headphones)

- With headphones on it is simplest if players don't try to J'adoube. Pieces will be nicely centred by the arbiter between each chess round. However, if the urge to J'adoube becomes irresistible, follow the below procedure...
- Clearly turn to the arbiter and mouth "J'adoube" AND give the J'adoube hand signal specially developed for chessboxing. Then adjust the piece as in a normal chess game.

  Pawn promotion

A key difference between casual chess and tournament rules. When promoting a pawn to a second queen, do NOT use an upside-down rook (as the electronic chessboard will not recognise it). Even if you shout "queen" as you do so, it is still a rook! The chessboxing arbiter will ensure a spare queen is on the table for you to use.

#### Clock

- The clock MUST be pressed with the same hand that makes the move
- Running out of time. If a player has no time remaining, then he is lost if his opponent can checkmate him assuming the most unskilled play, otherwise the game is a draw. For example, if Player A has three queens and a king, and Player B has one pawn and a king, then Player B wins if Player A runs out of time.
- A player should not start to make his move until the opponent has physically pressed his clock.
- Time scramble disputes can arise when 1 or both players are short of time and moving extremely quickly:
- o A player should not start to make his move until the opponent has physically pressed his clock. i.e. you should not rush to move a piece in the brief time between your opponent moving his piece and pressing his clock.
- o If a player knocks down pieces during a move, he should reset them in his own time before pressing his clock. If he presses his clock without resetting the pieces on their squares, then the opponent can immediately bounce the clock back without making a move, whilst pointing to the offending piece(s) that have been knocked down. The first player should then properly reset the pieces in his own time. [This completely differs from FIDE laws, where the innocent party should stop the clocks and inform the arbiter]. The same action can be performed if a piece is not clearly on a square but significantly overlaps another square such that its position is ambiguous. The arbiter can stop the clocks if there is a flurry of poorly placed pieces, and intervene to reset the board. The arbiter can penalise the offender.
- o Drawn position playing to win on time
- If the arbiter judges the position is a dead draw (e.g. opposite colour bishop ending, or R+K vs R+K), then the arbiter can intervene and declare a draw if a player is simply trying to win on time and not making a concerted effort to win the game. The defender does not need to request the arbiter to make such a judgement; the arbiter will assume the request exists as soon as a player has less than 2 minutes regining. [This differs from the FIDE laws, which requires the defender to stop the clocks BEFORE he gets into critical time trouble, and ask the arbiter to observe whether the attacker is making a concerted effort to win the game or is just aiming to win on time in a dead drawn position.]
- Losing position playing to win on time
- Note that if a player is in a winning position but is close to losing on time, the arbiter will not intervene in his favour. If he loses on time before he checkmates the opponent, this is more a consequence of time mismanagement than having to make countless moves shuffling pieces in a dead drawn position.
- Slow playing a lost position a rule developed for chessboxing to prevent stalling for time.
- If a player takes too much time in a lost position where he would be expected to play much quicker in a normal chess game, the arbiter can give him a count of 10. The arbiter will visually count with his hands. If no move is made on the count of 10, the player forfeits the game.

Draw by threefold repetition

- If the same position occurs 3 times (and with the same player to move), the player can claim a draw ONLY WHEN IT IS HIS MOVE. He should stop the clock after the opponent's last move, remove his headphones and TELL the arbiter what move he MOULD play to get into the 3rd repetition. DO NOT PLAY THE MOVE, DO NOT PRESS THE CLOCK. If the player is unsure how to pause the clock, then he can take off his headphones and claim the draw. The arbiter will stop the clock as the headphones come off. If the draw claim is correct and the claimant runs out of time after removing his headphones, the draw will hold.
- A draw by repetition normally occurs by perpetual check so is easy to identify.

#### 50 move rule

A draw can be claimed if neither a piece is taken nor a pawn moved in 50 moves (i.e. 50 White and 50 Black moves). As players are not writing a game score, the arbiter will monitor on their behalf – this is most likely to occur in an ending B+N+K vs. K.

#### Draw Offer

- Contrary to FIDE rules, players will not be able to offer a draw unless the position is a 'dead draw', as judged by the arbiter.
- The offer of a draw must be made through the arbiter. Make your move, do not press your clock, and then remove the headphones to speak to the arbiter. The arbiter will stop the clock and judge whether a draw offer is acceptable. If so, he will convey to the opponent for consideration and restart the clock (as the opponent can consider the draw offer until he makes his next move).

Verbal Communication with the arbiter

• If a player wants to speak to the arbiter during the game he should remove his headphones. The arbiter will stop the clock to talk. The other player can remove his headphones to listen to the conversation.

#### Arbiter's decision

• The arbiter's decision is final. The finer rules of chessboxing will no doubt evolve with the sport. Any unanticipated circumstances will be judged considering the official FIDE chess laws, the need for sporting fair play in relation to the tournament chess experience of the chessboxers, and the need to entertain a paying audience.

#### 7.10 Rules 6.docx

### Encoded

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XF1YWwgdGhlIGJvdXQgd2lsbCBiZSBkZWNsYXJIZCBhIGRyYXcuDQogDQoNCg==

#### Decoded

6. CHESS DRAW IN RELATION TO THE CHESSBOXING BOUT

If a chess draw is declared in any round, there will be at most only one boxing round thereafter. If the chess draw occurs in the final round, then there will be no further boxing round, in line with the original schedule. In the unlikely event that the chess game is drawn AND the boxing is a tie on points, then the player with the fewest chess penalties is the winner. If these are equal the bout will be declared a draw.

### 7.11 Rules 7.docx

#### **Encoded**

Nv4gIEhPVvBDSEVTUvBQSUVDRVMgTU9WRSDigJMgRklORVIgUE9JTlRTIFRIQVQgQ09ORIVT RSBCRUdJTk5FUlMNClRoZSBjb21wbGV0ZSBvZmZpY2lhbCBsYXdzIG9mIGNoZXNzIGFyZSBvbiB 0aGUgd2Vic2l0ZSBvZiBGSURFLCB0aGUgY2hlc3MgZ292ZXJuaW5nIGJvZHkuDQpUaGUgQXBwZ W5kaXggb24gdGhlIGFib3ZlIGxpbmsgZXhwbGFpbnMgY2hlc3Mgbm90YXRpb24sIGFuZCBpbnN0YW 5jZXMgd2hlcmUg4oCYYmxpdHrigJkgb3Ig4oCYcmFwaWTigJkgY2hlc3MgcnVsZXMgZGlmZmVyIGZ yb20gbm9ybWFsIOKAmGxvbmcgcGxheeKAmSB0aW1lIGNvbnRyb2xzLg0KQ2FzdGxpbmcNCuKAogl ĎYXŇ0bGluZyBpcyBvbmUgbW92ZQ0K4oCiCVRoZSBraW5nIGFsd2F5cyBtb3ZlcyAyIHNxdWFyZX MsIGFuZCB0aGUgcm9vayB0aGVuIGdvZXMgbmV4dCB0byB0aGUga2luZyBvbiB0aGUgb3RoZXIgc2l kZS4NCuKAoglBbGwgc3F1YXJlcyBiZXR3ZWVuIGtpbmcgYW5kIHJvb2sgbXVzdCBiZSBjbGVhci4gI ENhc3RsaW5nIGNhbm5vdCBjYXB0dXJlIGEgcGllY2UuDQrigKIJV2hpdGUgS2luZ3NpZGUgY2FzdGx pbmcgbW92ZXMgdGhlIEtpbmcgZnJvbSBlMSB0byBnMSwgYW5kIHRoZSBSb29rIGZyb20gaDEgdG8g ZjEuDQrigKIJV2hpdGUgUXVIZW5zaWRIIGNhc3RsaW5nIG1vdmVzIHRoZSBLaW5nIGZyb20gZTEgd G8gYzEsIGFuZCB0aGUgUm9vayBmcm9tIGExIHRvIGQxLg0KQ2FzdGxpbmcgaXMgbm90IGEgbGVn YWwgbW92ZSB3aGVu4oCmDQrigKIJ4oCmdGhlIGtpbmcgaXMgaW4gY2hlY2sNCuKAognigKZ0aGU ga2luZyBtb3ZlcyBpbnRvIGNoZWNrDQrigKIJ4oCmdGhlIGtpbmcgY3Jvc3NlcyBvdmVyIGEgc3F1YXJII HRoYXQgaXMgYXR0YWNrZWQgKG1hbnkgcGxheWVycyBhcmUgdW5hd2FyZSBvZiB0aGlzIHN1Y nRsZSBwb2ludCkNCuKAognigKZhIHBpZWNlIGlzIG9uIGEgc3F1YXJlIGJldHdlZW4ga2luZyBhbmQgc m9vaw0K4oCiCeKApnRoZSBraW5nIGhhcyBwcmV2aW91c2x5IG1vdmVkLCBldmVuIGlmIGl0IGhhcy BzaW5jZSByZXR1cm5lZCB0byBpdHMgb3JpZ2luYWwgc3F1YXJlDQrigKIJ4oCmdGhlIHJvb2sgdG8g YmUgY2FzdGxlZCBoYXMgcHJldmlvdXNseSBtb3ZlZCwgZXZlbiBpZiBpdCBoYXMgc2luY2UgcmV0 dXJuZWQgdG8gaXRzIG9yaWdpbmFsIHNxdWFyZQ0KUGF3biBQcm9tb3Rpb24NCkEgcGF3biByZWF jaGluZyB0aGUgZWlnaHRoIHJnbmsgaXMgOTkllG9mIHRpbWVzIHByb21vdGVkIHRvlGEgcXVlZW4s IGJ1dCBpdCBjYW4gYWxzbyBiZSDigJh1bmRlci1wcm9tb3RlZOKAmSB0byBhIGtuaWdodCwgYmlza G9wIG9vIHJvb2suDQpFbiBQYXNzYW50DQpBIHNwZWNpYWwgdHlwZ\$BvZiBwYXduIGNhcHR1c mUuIEEgcGF3biBhdHRhY2tpbmcgYSBzcXVhcmUgY3Jvc3NlZCBieSBhbiBvcHBvbmVudGBzIHBhd2 4gd2hpY2ggaGFzIGFkdmFuY2VkIHR3byBzcXVhcmVzIGluIG9uZSBtb3ZlIGZyb20gaXRzIG9yaWdpb mFsIHNxdWFyZSBtYXkgY2FwdHVyZSB0aGlzIG9wcG9uZW50YHMgcGF3biBhcyB0aG91Z2ggdGhlI GxhdHRlciBoYWQgYmVlbiBtb3ZlZCBvbmx5IG9uZSBzcXVhcmUuIFRoaXMgY2FwdHVyZSBpcyBvb mx5IGxlZ2FsIG9uIHRoZSBtb3ZlIGZvbGxvd2luZyB0aGlzIGFkdmFuY2UgYW5kIGlzIGNhbGxlZCBhbi BgZW4gcGFzc2FudGAgY2FwdHVyZS4gIOKAmEVuIHBhc3NhbnTigJkgaXMgRnJlbmNoIGZvciDigJh hcyBpdCBwYXNzZXPigJkuIFNlZSBodHRwOi8vZW4ud2lraXBlZGlhLm9vZy93aWtpL0VuX3Bhc3Nhb nQgZm9yIHZpc3VhbCBleGFtcGxlcy4NCg==

#### Decoded

7. HOW CHESS PIECES MOVE - FINER POINTS THAT CONFUSE BEGINNERS

The complete official laws of chess are on the website of FIDE, the chess governing body.

The Appendix on the above link explains chess notation, and instances where 'blitz' or 'rapid' chess rules differ from normal 'long play' time controls.

#### Castling

- Castling is one move
- The king always moves 2 squares, and the rook then goes next to the king on the other side.
- All squares between king and rook must be clear. Castling cannot capture a piece.
- White Kingside castling moves the King from e1 to g1, and the Rook from h1 to f1.
- White Queenside castling moves the King from e1 to c1, and the Rook from a1 to d1.

Castling is not a legal move when...

- ...the king is in check
- ...the king moves into check
- ...the king crosses over a square that is attacked (many players are unaware of this subtle point)
- …a piece is on a square between king and rook
- ...the king has previously moved, even if it has since returned to its original square
- ...the rook to be castled has previously moved, even if it has since returned to its original square

#### Pawn Promotion

A pawn reaching the eighth rank is 99% of times promoted to a queen, but it can also be 'under-promoted' to a knight, bishop or rook.

#### En Passant

A special type of pawn capture. A pawn attacking a square crossed by an opponent's pawn which has advanced two squares in one move from its original square may capture this opponent's pawn as though the latter had been moved only one square. This capture is only legal on the move following this advance and is called an 'en passant' capture. 'En passant' is French for 'as it passes'. See http://en.wikipedia.org/wiki/En\_passant for visual examples.

#### 7.12 track6.docx

#### Encoded

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### Decoded

Mr. Nas

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The Mystery of Chess Boxing:
(usernames)
Mr. Method
Kim Ill-Song
Mr. Razor
Mr. Genius
Mr. G. Killah
Matt Cassel
Mr. I. Deck
Mr. M Killa
Mr. O.D.B.
Mr. Raekwon
Mr. U-God
Mr. Cappadonna (possibly)
John Woo?
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### 7.13 track10.docx

#### Encoded

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#### Decoded

"Protect Ya Neck" "So what's up man? Cooling man" "Chilling chilling?" "Yo you know I had to call, you know why right?" "Why?" "Because, yo, I never ever call and ask, you to play something right?" "Yeah" "You know what I wanna hear right?" "What you wanna hear? I wanna hear that Wu-Tang joint" "Wu-Tang again?" "Ah yeah, again and again!"

[sounds of fighting]

[RZA] Wu-Tang Clan coming at you, protect your neck kid, so set it off the Inspector Deck [Meth] watch your step kid [8X]

[Inspector Deck] I smoke on the mic like smoking Joe Frazier The hell raiser, raising hell with the flavor Terrorize the jam like troops in Pakistan Swinging through your town like your neighborhood Spiderman So uhh, tic toc and keep ticking While I get you flipping off the shit I'm kicking The Lone Ranger, code red, danger! Deep in the dark with the art to rip charts apart The vandal, too hot to handle you battle, you're saying Goodbye like Tevin Campbell Roughneck, Inspector Deck's on the set The rebel, I make more noise than heavy metal

[Raekwon] The way I make the crowd go wild, sit back relax won't smile Rae got it going on pal, call me the rap assassinator Rhymes rugged and built like Schwarzenegger And I'm gonna get mad deep like a threat, blow up your project Then take all your assets Cause I came to shake the frame in half With the thoughts that bomb, shit like math! So if you wanna try to flip go flip on the next man Cause I grab the clip and Hit you with sixteen shots and more I got Going to war with the melting pot hot

[Method] It's the Method Man for short Mr. Meth Moving on your left, ah! And set it off, get it off, let it off like a gat I wanna break full, cock me back Small change, they putting shame in the

game I take aim and blow that nigga out the frame And like Fame, my style'll live forever Niggaz crossing over, but they don't know no better But I do, true, can I get a "sue" Nuff respect due to the one-six-oh I mean oh, you check out the flow like the Hudson or PCP when I'm dusting Niggaz off because I'm hot like sauce The smoke from the lyrical blunt makes me [cough]

[U-God] Oh, what, grab my nut get screwed Ow, here comes my Shaolin style Sloop, B. A. Buh-B. Y. U to my crew with the "sue"

[Interlude] watch your step kid [8X] [Ol Dirty Bastard] c'mon baby baby c'mon [4X] [RZA] Yo, you best protect your neck

[Ol Dirty Bastard] First things first man you're fucking with the worst I'll be sticking pins in your head like a fucking nurse I'll attack any nigga who's slack in his mack Come fully packed with a fat rugged stack Shame on you when you stepped through to The Ol Dirty Bastard straight from the Brooklyn Zoo And I'll be damned if I let any man Come to my center, you enter the winter Straight up and down that shit packed jam You can't slam, don't let me get fool on him man The Ol Dirty Bastard is dirty and stinking Ason, unique rolling with the night of the creeps Niggaz be rolling with a stash ain't saying cash, bite my style I'll bite your motherfucking ass!

[Ghostface Killah] For crying out loud my style is wild so book me Not long is how long that this rhyme took me Ejecting, styles from my lethal weapon My pen that rocks from here to Oregon Here's Mordigan, catch it like a psycho flashback I love gats, if rap was a gun, you wouldn't bust back I come with shit that's all types of shapes and sounds And where I lounge is my stomping grounds I give a order to my peeps across the water To go and snatch up props all around the border And get far like a shooting star 'cause who I am is dim in the light of Pablo Escobar Point blank as I kick the square biz There it is you're fucking with pros and there it goes

[RZA] You chill with the feedback black we don't need that It's ten o'clock hoe, where the fuck's your seed at? Feeling mad hostile, ran the apostle Flowing like Christ when I speaks the gospel Stroll with the holy roll then attack the globe with the buckus style the ruckus, ten times ten men committing mad sin Turn the other cheek and I'll break your fucking chin Slaying boom-bangs like African drums (we'll be) Coming around the mountain when I come Crazy flamboyant for the rap enjoyment My clan increase like black unemployment Yeah, another one dare, Tuh-took a genius (to) take us the fuck outta here

[Genius] The Wu is too slamming for these Cold Killing labels Some ain't had hits since I seen Aunt Mabel Be doing artists in like Cain did Abel Now they money's gettin stuck to the gum under the table That's what you get when you misuse what I invent Your empire falls and you lose every cent For trying to blow up a scrub Now that thought was just as bright as a 20-watt light bulb Should've pumped it when I rocked it Niggaz so stingy they got short arms and deep pockets This goes on in some companies With majors they're scared to death to pump these First of all, who's your A&R A mountain climber who plays an electric guitar But he don't know the meaning of dope When he's looking for a suit and tie rap that's cleaner than a bar of soap And I'm the dirtiest thing in sight Matter of fact bring out the girls and let's have a mud fight

[sounds of fighting]

[RZA] You best protect your neck [4X]

## 7.14 BillOfRight.txt

The Bill of Rights: A Transcription

The Preamble to The Bill of Rights

Congress of the United States begun and held at the City of New-York, on Wednesday the fourth of March, one thousand seven hundred and eighty nine.

THE Conventions of a number of the States, having at the time of their adopting the Constitution,

expressed a desire, in order to prevent misconstruction or abuse of its powers, that further declaratory and restrictive clauses should be added: And as extending the ground of public confidence in the Government, will best ensure the beneficent ends of its institution.

RESOLVED by the Senate and House of Representatives of the United States of America, in Congress assembled, two thirds of both Houses concurring, that the following Articles be proposed to the Legislatures of the several States, as amendments to the Constitution of the United States, all, or any of which Articles, when ratified by three fourths of the said Legislatures, to be valid to all intents and purposes, as part of the said Constitution; viz.

ARTICLES in addition to, and Amendment of the Constitution of the United States of America, proposed by Congress, and ratified by the Legislatures of the several States, pursuant to the fifth Article of the original Constitution.

Note: The following text is a transcription of the first ten amendments to the Constitution in their original form. These amendments were ratified December 15, 1791, and form what is known as the "Bill of Rights."

Amendment I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

Amendment II

A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

Amendment III

No Soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

Amendment IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

Amendment V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

Amendment VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defence.

Amendment VII

In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.

Amendment VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

Amendment IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

Amendment X

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

AMENDMENT XI

Passed by Congress March 4, 1794. Ratified February 7, 1795.

Note: Article III, section 2, of the Constitution was modified by amendment 11.

The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State.

AMENDMENT XII

Passed by Congress December 9, 1803. Ratified June 15, 1804.

Note: A portion of Article II, section 1 of the Constitution was superseded by the 12th amendment.

The Electors shall meet in their respective states and vote by ballot for President and Vice-President, one of whom, at least, shall not be an inhabitant of the same state with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President, and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the President of the Senate; - the President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates and the votes shall then be counted; - The person having the greatest number of votes for President, shall be the President, if such number be a majority of the whole number of Electors appointed; and if no person have such majority, then from the persons having the highest numbers not exceeding three on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the votes shall be taken by states, the representation from each state having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the states, and a majority of all the states shall be necessary to a choice. [And if the House of Representatives shall not choose a President whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in case of the death or other constitutional disability of the President. -]\* The person having the greatest number of votes as Vice-President, shall be the Vice-President, if such number be a majority of the whole number of Electors appointed, and if no person have a majority, then from the two highest numbers on the list, the Senate shall choose the Vice-President; a quorum for the purpose shall consist of two-thirds of the whole number of Senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

\*Superseded by section 3 of the 20th amendment.

AMENDMENT XIII

Passed by Congress January 31, 1865. Ratified December 6, 1865.

Note: A portion of Article IV, section 2, of the Constitution was superseded by the 13th amendment.

Section 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof

the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

Section 2. Congress shall have power to enforce this article by appropriate legislation.

AMENDMENT XIV

Passed by Congress June 13, 1866. Ratified July 9, 1868.

Note: Article I, section 2, of the Constitution was modified by section 2 of the 14th amendment. Section 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

Section 2. Representatives shall be apportioned among the several States according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for President and Vice-President of the United States, Representatives in Congress, the Executive and Judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age,\* and citizens of the United States, or in any way abridged, except for participation in rebellion, or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

Section 3. No person shall be a Senator or Representative in Congress, or elector of President and Vice-President, or hold any office, civil or military, under the United States, or under any State, who, having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State legislature, or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But Congress may by a vote of two-thirds of each House, remove such disability.

Section 4. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations and claims shall be held illegal and void.

Section 5. The Congress shall have the power to enforce, by appropriate legislation, the provisions of this article.

\*Changed by section 1 of the 26th amendment.

AMENDMENT XV

Passed by Congress February 26, 1869. Ratified February 3, 1870.

Section 1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude—

Section 2. The Congress shall have the power to enforce this article by appropriate legislation.

AMENDMENT XVI

Passed by Congress July 2, 1909. Ratified February 3, 1913.

Note: Article I, section 9, of the Constitution was modified by amendment 16.

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration.

AMENDMENT XVII

Passed by Congress May 13, 1912. Ratified April 8, 1913.

Note: Article I, section 3, of the Constitution was modified by the 17th amendment.

The Senate of the United States shall be composed of two Senators from each State, elected by the people thereof, for six years; and each Senator shall have one vote. The electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State legislatures.

When vacancies happen in the representation of any State in the Senate, the executive authority of such State shall issue writs of election to fill such vacancies: Provided, That the legislature of any State may empower the executive thereof to make temporary appointments until the people fill the vacancies by election as the legislature may direct.

This amendment shall not be so construed as to affect the election or term of any Senator chosen before it becomes valid as part of the Constitution.

#### AMENDMENT XVIII

Passed by Congress December 18, 1917. Ratified January 16, 1919. Repealed by amendment 21.

Section 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

Section 2. The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation.

Section 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

#### AMENDMENT XIX

Passed by Congress June 4, 1919. Ratified August 18, 1920.

The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex.

Congress shall have power to enforce this article by appropriate legislation.

#### AMENDMENT XX

Passed by Congress March 2, 1932. Ratified January 23, 1933.

Note: Article I, section 4, of the Constitution was modified by section 2 of this amendment. In addition, a portion of the 12th amendment was superseded by section 3.

Section 1. The terms of the President and the Vice President shall end at noon on the 20th day of January, and the terms of Senators and Representatives at noon on the 3rd day of January, of the years in which such terms would have ended if this article had not been ratified; and the terms of their successors shall then begin.

Section 2. The Congress shall assemble at least once in every year, and such meeting shall begin at noon on the 3d day of January, unless they shall by law appoint a different day.

Section 3. If, at the time fixed for the beginning of the term of the President, the President elect shall have died, the Vice President elect shall become President. If a President shall not have been chosen before the time fixed for the beginning of his term, or if the President elect shall have failed to qualify, then the Vice President elect shall act as President until a President shall have qualified; and the Congress may by law provide for the case wherein neither a President elect nor a Vice President shall have qualified, declaring who shall then act as President, or the manner in which one who is to act shall be selected, and such person shall act accordingly until a President or Vice President shall have qualified.

Section 4. The Congress may by law provide for the case of the death of any of the persons from whom the House of Representatives may choose a President whenever the right of choice shall have

devolved upon them, and for the case of the death of any of the persons from whom the Senate may choose a Vice President whenever the right of choice shall have devolved upon them.

Section 5. Sections 1 and 2 shall take effect on the 15th day of October following the ratification of this article.

Section 6. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several States within seven years from the date of its submission.

#### AMENDMENT XXI

Passed by Congress February 20, 1933. Ratified December 5, 1933.

Section 1. The eighteenth article of amendment to the Constitution of the United States is hereby repealed.

Section 2. The transportation or importation into any State, Territory, or Possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited.

Section 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by conventions in the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

#### AMENDMENT XXII

Passed by Congress March 21, 1947. Ratified February 27, 1951.

Section 1. No person shall be elected to the office of the President more than twice, and no person who has held the office of President, or acted as President, for more than two years of a term to which some other person was elected President shall be elected to the office of President more than once. But this Article shall not apply to any person holding the office of President when this Article was proposed by Congress, and shall not prevent any person who may be holding the office of President, or acting as President, during the term within which this Article becomes operative from holding the office of President or acting as President during the remainder of such term.

Section 2. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of three-fourths of the several States within seven years from the date of its submission to the States by the Congress.

#### AMENDMENT XXIII

Passed by Congress June 16, 1960. Ratified March 29, 1961.

Section 1. The District constituting the seat of Government of the United States shall appoint in such manner as Congress may direct:

A number of electors of President and Vice President equal to the whole number of Senators and Representatives in Congress to which the District would be entitled if it were a State, but in no event more than the least populous State; they shall be in addition to those appointed by the States, but they shall be considered, for the purposes of the election of President and Vice President, to be electors appointed by a State; and they shall meet in the District and perform such duties as provided by the twelfth article of amendment.

Section 2. The Congress shall have power to enforce this article by appropriate legislation.

#### AMENDMENT XXIV

Passed by Congress August 27, 1962. Ratified January 23, 1964.

Section 1. The right of citizens of the United States to vote in any primary or other election for President or Vice President, for electors for President or Vice President, or for Senator or Representative in Congress, shall not be denied or abridged by the United States or any State by reason of failure to pay any poll tax or other tax.

Section 2. The Congress shall have power to enforce this article by appropriate legislation.

#### AMENDMENT XXV

Passed by Congress July 6, 1965. Ratified February 10, 1967.

Note: Article II, section 1, of the Constitution was affected by the 25th amendment.

Section 1. In case of the removal of the President from office or of his death or resignation, the Vice President shall become President.

Section 2. Whenever there is a vacancy in the office of the Vice President, the President shall nominate a Vice President who shall take office upon confirmation by a majority vote of both Houses of Congress.

Section 3. Whenever the President transmits to the President pro tempore of the Senate and the Speaker of the House of Representatives his written declaration that he is unable to discharge the powers and duties of his office, and until he transmits to them a written declaration to the contrary, such powers and duties shall be discharged by the Vice President as Acting President.

Section 4. Whenever the Vice President and a majority of either the principal officers of the executive departments or of such other body as Congress may by law provide, transmit to the President pro tempore of the Senate and the Speaker of the House of Representatives their written declaration that the President is unable to discharge the powers and duties of his office, the Vice President shall immediately assume the powers and duties of the office as Acting President.

Thereafter, when the President transmits to the President pro tempore of the Senate and the Speaker of the House of Representatives his written declaration that no inability exists, he shall resume the powers and duties of his office unless the Vice President and a majority of either the principal officers of the executive department or of such other body as Congress may by law provide, transmit within four days to the President pro tempore of the Senate and the Speaker of the House of Representatives their written declaration that the President is unable to discharge the powers and duties of his office. Thereupon Congress shall decide the issue, assembling within forty-eight hours for that purpose if not in session. If the Congress, within twenty-one days after receipt of the latter written declaration, or, if Congress is not in session, within twenty-one days after Congress is required to assemble, determines by two-thirds vote of both Houses that the President is unable to discharge the powers and duties of his office, the Vice President shall continue to discharge the same as Acting President; otherwise, the President shall resume the powers and duties of his office.

#### AMENDMENT XXVI

Passed by Congress March 23, 1971. Ratified July 1, 1971.

Note: Amendment 14, section 2, of the Constitution was modified by section 1 of the 26th amendment.

Section 1. The right of citizens of the United States, who are eighteen years of age or older, to vote shall not be denied or abridged by the United States or by any State on account of age.

Section 2. The Congress shall have power to enforce this article by appropriate legislation.

#### AMENDMENT XXVII

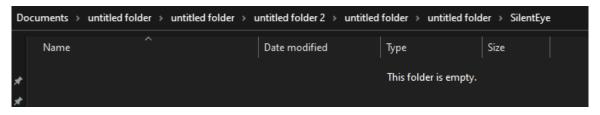
Originally proposed Sept. 25, 1789. Ratified May 7, 1992.

No law, varying the compensation for the services of the Senators and Representatives, shall take effect, until an election of representatives shall have intervened.

# 7.15 NorthKorea.jpeg



### 7.16 untitled folder



# 7.17 broken.py

```
def fileToString(pathToFile):
f = open(pathToFile, "r")
strs = ""
#adds each line of the file to the strs string
for line in f.readlines():
strs+=line
return strs
def ASCII():
#number of ASCII characters
NumOfASCII == 0
#returns list of all ASCII characters
return "".join([chr(i) for i in range(NumOfASCII)])
def sumName(name):
sums=0
#sums the indices in ASCII of all the characters in name
for x in name:
```

```
sums+=ord(x
return sums
def indexInFile(password):
indices = []
ASCIIArray = ASCII()
#populates an array of indices to be used by the encoder
for chrs in password:
indices.append(ASCIIArray.index(chrs)+sumName(name)*2
return indices
def indexInASCII(name):
indices = []
ASCIIArray = ASCII()
#split on all non-numeric characters
#remove first index because it is blank
indexList = re.split("[^\d]",encoded)[1:]
#converts encoded characters to ASCII
for index in indexList:
indices.append(ASCIIArray[int(index) - (sumName(name)*2)])
#returns decoded message
return "".join(indices)
def encode(name):
#returns a list of indices to be used for encoding
indices = indexInFile(password,name)
#convert file associated with name to a string
bill = fileToString("./%s.txt"%name)
encoded = ""
#add letter in file plus index of the letter in the file to the encoded string
for index in indices:
encoded+=bill[index]+str(index)
```

return encoded

# 8 APPENDIX B - Capture 2

## 8.1 Decode IRC messages

To: Razor1 From: Ill\_Song

Mr. Razor, I am excited about the prospect of the Chess Boxing world title coming to Pyongyang.

To: Ill\_Song From: :Razor1! malware@216.14.247.46

Well the decision is not final yet.

To: Razor1 From: Ill\_Song

Pyongyang is beautiful this time of year. Perhaps you would like to visit and experience what Best

Korea has to offer.

To: Ill\_Song From: :Razor1! malware@216.14.247.46

I am a very busy man, but perhaps I could be persuaded to visit. See if Pyongyang is the right

place for the World Title.

To: Razor1 From: Ill\_Song

Perhaps not. How about I send you a gift? Something to get you out of the City of Love and take

your own vacation somewhere.

To: Ill\_Song From: :Razor1! malware@216.14.247.46

Somewhere expensive, I hope.

To: Razor1 From: Ill\_Song

5

To: Ill\_Song From: :Razor1! malware@216.14.247.46

39

To: Razor1 From: Ill\_Song

7

To: Ill\_Song From: :Razor1! malware@216.14.247.46

\$700,000 it is. Where can I meet you?

To: Razor1 From: Ill\_Song

I will be in touch with the address.

To: Genius1 From: Ill\_Song

As we discussed earlier, I believe I might be able to help you with your search.

To: Ill\_Song From: :Genius1! malware@216.14.247.46

I see. Then we must meet, and I will see the validity of this claim.

To: Genius1 From: Ill\_Song

I can be in Caracas within the week.

To: Ill\_Song From: :Genius1! malware@216.14.247.46

No. Not here. Can I not go to you?

To: Genius1 From: Ill\_Song

I am afraid that would be unwise. I will send you a message with the date and location through a

more secure form of communication.

To: Method From: Ill\_Song

Mr. Method, I am excited about the prospect of the Chess Boxing world title coming to

Pyongyang.

To: Ill\_Song From: :Method! malware@216.14.247.46

I am not sure who you are, but I have an idea. Either way, I am not interested.

To: Method From: Ill\_Song

I am just hopeful. It would mean so much to have to have the Title here. Please consider it.

To: Ill\_Song From: :Method! malware@216.14.247.46

Do not speak to me again.

To: Killah From: Ill\_Song

How is the weather in Qatar, Mr. Killah?

To: Ill\_Song From: :Killah! malware@216.14.247.46

Hot, as always. Who is this?

To: Killah From: Ill\_Song

I am a fan of Chess Boxing. I would love to see the Title held in Korea.

To: Ill\_Song From: :Killah! malware@216.14.247.46

We will have to see how the bid turns out.

To: Killah From: Ill\_Song

Is there anything that I could do to help make your decision easier?

To: Ill\_Song From: :Killah! malware@216.14.247.46

No! The great nation of Qatar would never be swayed so easily.

To: Ill\_Song From: :Killah! malware@216.14.247.46

Nor would I. We do not take kindly to this pathetic notion of bribery.

To: Raekwon From: Ill\_Song

Mr. Raekwon, have you spoken with Mr. Razor?

To: Ill\_Song From: :Raekwon! malware@216.14.247.46

I have, but I won.t be bought so easily.

To: Raekwon From: Ill\_Song

Bought? Of course not. You are an official on the executive committee of the ICBA. I just want you to know that I am here to help make your decision as easy as possible.

To: Ill\_Song From: :Raekwon! malware@216.14.247.46

I would need at least 20 million Rubles.

To: Raekwon From: Ill\_Song

Consider it done. I will send you the information for the drop-off point soon.

# 8.2 Decoder python

```
import base64
filename = "output.txt" #output from the tshark/grep command
text = open(filename).read().splitlines() #format the output
sorted = "./sorted.txt" #put the formatted messages in its new file
c = open(sorted, 'w') #removes any old data from previous runs
c.write('')
for i in range(len(text)):
        message = text[i].split(' :')
        if ' ' in message[0]:
               counter = message[0].split('PRIVMSG')
                if counter[0]:
                        sender = counter[0]
                else:
                        sender = "Ill_Song"
                receiver = counter[1]
        else:
                receiver = message[0]
        decoded = base64.b64decode(message[1])
        try:
                decoded = base64.b32decode(decoded)
        except:
        #outputs the recovered message to file after decoding
        file = open(sorted, 'a')
        file.write("To: " + receiver + " From: " + sender + "\n")
        file.write( decoded.decode('utf-8') + "\n\n")
```

# 9 APPENDIX C - Capture 3

## Images and CAT commands

## 9.1 broken.py fixed

```
import re
def fileToString(pathToFile):
    f = open(pathToFile, "r")
    strs = ""
    #adds each line of the file to the strs string
    for line in f.readlines():
        strs+=line
    return strs
def ASCII():
    #number of ASCII characters
    NumOfASCII = 128
    #returns list of all ASCII characters
    return "".join([chr(i) for i in range(NumOfASCII)])
def sumName(name):
    sums=0
    #sums the indices in ASCII of all the characters in name
    for x in name:
        sums+=ord(x)
    return sums
def indexInFile(password, name):
    indices = []
    ASCIIArray = ASCII()
    #populates an array of indices to be used by the encoder
    for chrs in password:
        indices.append(ASCIIArray.index(chrs)+sumName(name)*2)
    return indices
def indexInASCII (encoded, name):
    indices = []
    ASCIIArray = ASCII()
    \#split on all non-numeric characters
    #remove first index because it is blank
    indexList = re.split("[^ \d]", encoded)[1:]
    #converts encoded characters to ASCII
    for index in indexList:
        indices.append(ASCIIArray[int(index) - (sumName(name)*2)])
    \#returns\ decoded\ message
    return "".join(indices)
def encode (password, name):
    #returns a list of indices to be used for encoding
    indices = indexInFile(password, name)
    #convert file associated with name to a string
```

```
bill = fileToString("./%s.txt"%name)
encoded = ""
#add letter in file plus index of the letter in the file to the encoded string
for index in indices:
        encoded+=bill[index]+str(index)
    return encoded

if __name__ == "__main__":
    encoded = "i2454_2497d2496n2502_2470_2500_2507o2436s2452_2500s2503n2502l2487e2456
___2497_2500h2485l2487_2470b2490e2491a2501m2466_2483a2501a2501e2505_2497_2500a2486"
    name = "BillOfRights"
    print(indexInASCII(encoded, name))
```

# 9.2 Images and cat commands

## Edward.jpg



cat I.jpg cant.jpg in.jpg good.jpg conscience.jpg allow.jpg the.jpg U.S..jpg government.jpg to.jpg destroy.jpg privacy.jpg internet.jpg freedom.jpg and.jpg basic.jpg liberties.jpg for.jpg people.jpg around.jpg world.jpg with.jpg this.jpg massive.jpg surveillance.jpg machine.jpg theyre.jpg secretly.jpg building.jpg > Edward.jpg



cat condone.jpg American.jpg web-based.jpg rights.jpg constructing.jpg security.jpg terrorism.jpg NSA.jpg Watergate.jpg corrupt.jpg human.jpg behind.jpg closed.jpg doors.jpg > random1.jpg



cat there.jpg their.jpg a.jpg it.jpg but.jpg communism.jpg nor.jpg because.jpg unconstitutional.jpg secretive.jpg secret.jpg > random2.jpg

# 10 Appendix D - Capture 4

## 10.1 Messages

Kim Ill-Song: Good afternoon, Ann.

Ann Dercover: who is this? Kim Ill-Song: Castling. Ann Dercover: where are you

Kim Ill-Song: I know I can't tell you that

Ann Dercover: Do you know that there are people investigating Kim Ill-Song? Kim Ill-Song: Of course. However, they will never know it is me behind the bribes.

Ann Dercover: still we should be careful. Pay attention. I want to meet in September at 5PM.

Kim Ill-Song: At our old meetup spot?

Ann Dercover: yes Kim Ill-Song: What day?

Ann Dercover: I told you to pay attention.

#### 10.2 Locations

Latitude Longitude

46.85661316 -114.0186081

46.85693359 -114.018631

46.8572731 -114.0186844

46.85760117 -114.0186691

46.85805511 -114.0186615

46.85828781 -114.0186462

46.85852432 -114.0186386

46.85873413 -114.0186462

46.85884476 -114.0186462

46.85894394 -114.0186462

46.85904694 -114.0186462

 $46.85914993\,\, \text{-}114.0186462$ 

46.85946655 -114.0186462

46.85957718 -114.0186462

46.85969162 -114.0186462

46.85980988 -114.0186462

46.85993195 -114.0186462

46.86029053 -114.018631

46.86052322 -114.0186386

46.86075592 -114.018631 46.86098862 -114.018631

46 06100004 114 0106001

46.86122894 -114.0186386 46.8614769 -114.018631

46.86159897 -114.018631

46.86183548 -114.0186234

46.86206436 -114.0186157

46.8622818 -114.0186005

46.86248779 -114.0186005

- 46.86260223 -114.0185928
- 46.8628273 -114.0185776
- 46.86306381 -114.0185776
- 46.86330032 -114.0185623
- 46.86342621 -114.0185547
- 46.86355209 -114.0185471
- 46.86367416 -114.0185394
- 46.86378098 -114.0185394
- 46.86387253 -114.0185318
- 46.86370468 -114.0116425
- 46.8637085 -114.0116348
- 46.86401749 -114.0110703
- 46.86404419 -114.0107498
- 46.864048 -114.0107117
- 46.86408997 -114.0104218
- 46.86408997 114.0101242
- 46.86407852 -114.0096283
- 46.86407089 114.0094223
- 46.86406708 -114.0091019
- 46.86407471 -114.0087585
- 46.86408234 -114.0084229
- 46.86405182 114.0074692
- 46.86404419 -114.007164
- 46.86404419 -114.0069427
- 46.864048 -114.0068054
- 46.86405563 -114.0067062
- 46.86405182 -114.0066223
- 46.86405182 -114.0064621
- 46.86405182 -114.006279
- 46.86405182 -114.0060577
- 46.86405182 -114.005928
- 46.86405945 -114.0056305
- 46.86405945 -114.0053406
- $46.86405563\,\,\hbox{-}114.0050659$
- 46.86405182 -114.004776
- 46.86405182 114.004524246.86404419 - 114.0042725
- 46.86404419 114.0041428
- 46.86404037 114.0039215
- 46.86398315 -114.0035477
- 46.86393356 -114.0035172
- 46.86381912 -114.0035248
- 46.86364365 -114.00354
- 46.86354446 -114.0035477
- 46.86325455 -114.0036011
- 46.86309052 -114.0037689
- 46.86293411 -114.0039673
- 46.86286163 -114.0040817

- 46.86270142 -114.0043259
- 46.86253357 114.0045776
- 46.86236191 -114.0048141
- 46.86210632 -114.0052032
- 46.86183548 -114.0055923
- 46.86166 -114.0058441
- 46.86148453 -114.0060959
- 46.86122131 -114.0064774
- 46.86103058 -114.0067291
- 46.86084366 -114.0069962
- 46.86065674 114.0072708
- 46.86037064 -114.0076675
- 46.85998917 -114.0082092
- 46.8597908 -114.0084839
- 46.85969162 -114.0086212
- 46.85950089 -114.008873
- 46.85930252 -114.00914
- 46.85910416 -114.0094147
- 46.85900879 -114.0095444
- 46.8588295 -114.0097961
- 46.85864639 -114.0100555
- 46.85837555 114.0104446
- 46.85812378 -114.0107956
- 46.85795212 -114.0110397
- 46.85778809 -114.0112762
- 46.05776000 111.0112702
- 46.85765839 -114.0114517
- 46.85751343 -114.0116425
- 46.85749054 -114.0116882 46.85747147 -114.0117111
- 46.85741806 -114.011795
- 46.85733414 -114.0119095
- 46.85723495 -114.0120468
- $46.85718155\,\, \text{-}114.0121231$
- 46.85708237 -114.0122528
- 46.85697937 -114.0123749
- 46.85683441 -114.0125656
- $46.85672379\,\,\text{--}\,114.0127106$
- 46.8565979 -114.0128708
- $46.85647202\,\,\hbox{-}114.0130234$
- 46.85631943 -114.0131302